

OFFICIAL

Response Under 37 C.F.R. § 1.116
Expedited Procedure
Examining Group 2827

PATENT

Docket No. 150.00620103

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Drussel et al.

Group Art Unit: 2827

FAX RECEIVED

Serial No.: 09/865,336

Examiner: J. Norris

NOV 25 2002

Confirmation No.: 3557

TECHNOLOGY CENTER 2800

Filed: 25 May 2001

For: SINGULATION METHODS AND SUBSTRATES FOR USE WITH SAME**RESPONSE****UNDER 37 C.F.R. § 1.116**

Assistant Commissioner for Patents

BOX AF

Washington D.C. 20231

Dear Sir:

In response to the Final Office Action dated 24 September 2002, please consider the following remarks:

Remarks

The Office Action dated 24 September 2002 has been received and reviewed.
Reconsideration and withdrawal of the rejection is respectfully requested.

Allowed Claims

Applicants acknowledge that claims 22-62 have been allowed.

Response Under 37 C.F.R. § 1.116 - Expedited Examining Procedure

Page 2 of 4

Serial No.: 09/865,336

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Objected to Claim

Applicants further acknowledge that claim 75 has been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the elements of the base claim and any intervening claims. However, Applicants have not rewritten claim 75 because it is believed that the pending claims are allowable in view of the cited reference.

The 35 U.S.C. § 102(b) Rejection

The Examiner rejected claims 69-74 and 76-78 under 35 U.S.C. § 102(b) as being anticipated by Takubo et al. (U.S. Patent No. 5,448,451).

Applicants traverse this rejection and submit that claims 69-74 and 76-78 are not anticipated by Takubo et al. for at least the following reasons.

For a claim to be anticipated under 35 U.S.C. § 102(b), each and every element of the claim must be found in a single prior art reference. *See* M.P.E.P. § 2131.

Applicants submit that Takubo et al. does not teach each and every element of claims 69-74 and 76-78. For example, claim 69 teaches a plurality of circuit forming regions including at least one pair of adjacent circuit forming regions. In contrast to claim 69, the embodiment of Takubo et al. relied upon by the Examiner (i.e., FIG. 7A) teaches a single chip 8 positioned in device hole 6. In other words, FIG. 7A of Takubo et al. only teaches a single alleged "circuit forming region" and not at least one pair of adjacent circuit forming regions.

Further, claim 69 recites one or more circuits formed in one or more of the circuit forming regions of the substrate material resulting in a packaged individual circuit in each of the one or more circuit forming regions. Those skilled in the art understand that a "packaged individual circuit" includes conductive circuit connection elements, e.g., solder balls, conductive pads, etc. For example, FIG. 3D of the present invention shows a bump grid array package assembly 20 and an encapsulated or molded package portion 50 formed on the side of the circuit board substrate material 21 opposite of ball grid array bumps 48. *See* Specification, page 11, lines 22-26. As can be seen in FIG. 3D, encapsulated or molded package portion 50 is formed in

Response Under 37 C.F.R. § 1.116 - Expedited Examining Procedure

Page 3 of 4

Serial No.: 09/865,336

Confirmation No.: 3557

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For: SINGULATION METHODS AND SUBSTRATES FOR USE WITH SAME

the substrate material adjacent the at least one opening 24 as described in claim 69. In other words, the packaged individual circuit is formed entirely in the circuit forming region and does not extend beyond the circuit forming region into or across the opening. As such, singulating the substrate material would cause the packaged individual circuits to be completely and individually separated as is desired according to the present invention.

In contrast to claim 69, Takubo et al. teaches a film carrier tape having lead wire groups (e.g., lead wire group 3-2 of FIG. 7A) that extend from the chip onto the film. As can be seen in FIG. 7A, Takubo et al. teaches that the lead wire group 3-2 extends beyond the alleged circuit forming region 6 and over the lead holes 7-1 and 7-2. Therefore, Takubo et al. does not teach a packaged individual circuit (which includes conductive circuit connection elements) in each of the one or more circuit forming regions adjacent the at least one opening as is alleged by the Examiner. Because Takubo et al. does not teach each and every element of claim 69, such claim cannot be anticipated by Takubo et al. Further, if the film carrier tape of Takubo et al. were singulated, then the circuits would not fall apart as the individual package is not adjacent the opening but instead extends across the opening. In other words, the film carrier tape would not be able to be singulated because the lead wire group 3-2, which extends over the lead holes 7-1 and 7-2, would remain attached to the film carrier tape on the other side of the opening.

Claims 70-74 and 76-78, which depend from claim 69, are not anticipated by Takubo et al. for the same reasons as presented above for claim 69. In addition, such claims each recite additional elements that further support patentability when combined with claim 69.

For at least the above reasons, Applicants submit that claims 69-74 and 76-78 are not anticipated by Takubo et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

Response Under 37 C.F.R. § 1.116 - Expedited Examining Procedure

Page 4 of 4

Serial No.: 09/865,336

Confirmation No.: 3557

Filed: 25 May 2001

For: SINGULATION METHODS AND SUBSTRATES FOR USE WITH SAME

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Micron Technology, Inc.

By

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25 Nov 2002

Date

CERTIFICATE UNDER 37 C.F.R. § 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 C.F.R. § 1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 25 day of November, 2002, at 4:00pm (Central Time).

By:

Name: SARA E. OLSON